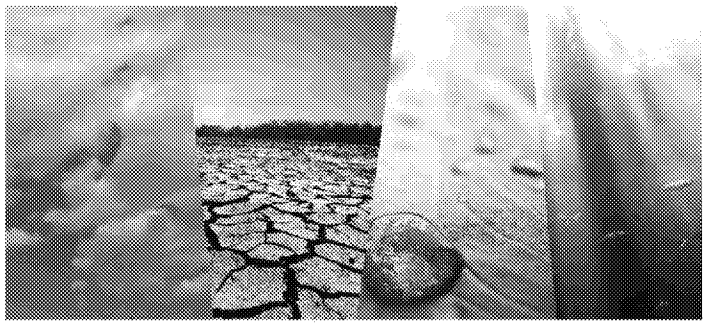
Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 14-03-0924

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CH2M Hill

Client Project Name: Dynegy / 482070.01.06

Attention: Greg Early
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707-5735

Approved for release on 03/21/2014 by:
Virendra Patel
Project Manager

ResultLink ▸

Email your PM ▸

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Dynegy / 482070.01.06
Work Order Number: 14-03-0924

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 14-03-0924 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 03/12/14. They were assigned to Work Order 14-03-0924.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Calscience Environmental Laboratories, Inc.

Sample Summary

Client:	CH2M Hill	Work Order:	14-03-0924
	6 Hutton Centre Drive, Suite 700	Project Name:	Dynegy / 482070.01.06
	Santa Ana, CA 92707-5735	PO Number:	
		Date/Time Received:	03/12/14 19:00
		Number of Containers:	6
Attn:	Greg Early		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
SBPP-PCB11-031114	14-03-0924-1	03/11/14 10:46	1	Wipe
SBPP-PCB12-031114	14-03-0924-2	03/11/14 10:52	1	Wipe
SBPP-PCB9-031114	14-03-0924-3	03/11/14 13:00	1	Wipe
SBPP-PCB6-031114	14-03-0924-4	03/11/14 13:10	1	Wipe
SBPP-PCB5-031114	14-03-0924-5	03/11/14 13:15	1	Wipe
SBPP-PCB4-031114	14-03-0924-6	03/11/14 13:20	1	Wipe

Calscience Environmental Laboratories, Inc.

Analytical Report

CH2M Hill
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707-5735

Date Received: 03/12/14
Work Order: 14-03-0924
Preparation: EPA 3545
Method: EPA 8082
Units: ug/smpl

Project: Dynegy / 482070.01.06

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB11-031114	**14-03-0924-1-A**	**03/11/14 10:46**	**Wipe**	**GC 31**	**03/14/14**	**03/17/14 22:20**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	76	50-130	
2,4,5,6-Tetrachloro-m-Xylene	82	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB12-031114	**14-03-0924-2-A**	**03/11/14 10:52**	**Wipe**	**GC 31**	**03/14/14**	**03/17/14 22:39**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	91	50-130	
2,4,5,6-Tetrachloro-m-Xylene	81	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

CH2M Hill
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707-5735

Date Received: 03/12/14
Work Order: 14-03-0924
Preparation: EPA 3545
Method: EPA 8082
Units: ug/smpl

Project: Dynegy / 482070.01.06

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB9-031114	**14-03-0924-3-A**	**03/11/14 13:00**	**Wipe**	**GC 31**	**03/14/14**	**03/17/14 22:58**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	50-130	
2,4,5,6-Tetrachloro-m-Xylene	79	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB6-031114	**14-03-0924-4-A**	**03/11/14 13:10**	**Wipe**	**GC 31**	**03/14/14**	**03/17/14 23:18**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	79	50-130	
2,4,5,6-Tetrachloro-m-Xylene	82	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

CH2M Hill		Date Received:	03/12/14
6 Hutton Centre Drive, Suite 700		Work Order:	14-03-0924
Santa Ana, CA 92707-5735		Preparation:	EPA 3545
		Method:	EPA 8082
		Units:	ug/smpl
Project: Dynegy / 482070.01.06			Page 3 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB5-031114	**14-03-0924-5-A**	**03/11/14 13:15**	**Wipe**	**GC 31**	**03/14/14**	**03/17/14 23:37**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	76	50-130	
2,4,5,6-Tetrachloro-m-Xylene	80	50-130	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SBPP-PCB4-031114	**14-03-0924-6-A**	**03/11/14 13:20**	**Wipe**	**GC 31**	**03/14/14**	**03/18/14 11:13**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	83	50-130	
2,4,5,6-Tetrachloro-m-Xylene	85	50-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

CH2M Hill
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707-5735

Date Received: 03/12/14
Work Order: 14-03-0924
Preparation: EPA 3545
Method: EPA 8082
Units: ug/smpl

Project: Dynegy / 482070.01.06

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-582-270**	**N/A**	**Solid**	**GC 31**	**03/14/14**	**03/17/14 22:01**	**140314L17**

Parameter	Result	RL	DF	Qualifiers
Aroclor-1016	ND	1.0	1.00	
Aroclor-1221	ND	1.0	1.00	
Aroclor-1232	ND	1.0	1.00	
Aroclor-1242	ND	1.0	1.00	
Aroclor-1248	ND	1.0	1.00	
Aroclor-1254	ND	1.0	1.00	
Aroclor-1260	ND	1.0	1.00	
Aroclor-1262	ND	1.0	1.00	
Aroclor-1268	ND	1.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	80	50-130	
2,4,5,6-Tetrachloro-m-Xylene	83	50-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

CH2M Hill		Date Received:	03/12/14
6 Hutton Centre Drive, Suite 700		Work Order:	14-03-0924
Santa Ana, CA 92707-5735		Preparation:	EPA 3545
		Method:	EPA 8082
Project: Dynegy / 482070.01.06			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-582-270	**LCS**	**Solid**	**GC 31**	**03/14/14**	**03/17/14 21:23**	**140314L17**
099-12-582-270	**LCSD**	**Solid**	**GC 31**	**03/14/14**	**03/17/14 21:42**	**140314L17**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aroclor-1016	2.000	1.499	75	1.456	73	50-135	3	0-25	
Aroclor-1260	2.000	1.372	69	1.415	71	50-135	3	0-25	

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 14-03-0924 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 8082	EPA 3545	669	GC 31	1

Return to Contents

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 14-03-0924 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Calscience Environmental Laboratories, Inc.

COC #3

CHAIN OF CUSTODY RECORD

Date 3/12/14

Page 1 of 1

SoCal Laboratory
7440 Lincoln Way
Garden Grove, CA 92841-1427
(714) 895-5494

NorCal Service Center
5063 Commercial Circle, Suite H
Concord, CA 94520-8577
(925) 689-9022

WO # / LAB USE ONLY: 14-03-0924

LABORATORY CLIENT: CH2MHill

ADDRESS: 6 Hutton Centre DR

CITY: Santa Ana STATE: Ca ZIP: 92707

TEL: E-MAIL: GEarly@CH2M.Com

CLIENT PROJECT NAME / NUMBER: Dynegy / 482070.01.06

P.O. NO.:

PROJECT CONTACT: Greg Early 714 721-5474

SAMPLER(S): (PRINT) Greg Early

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID LOG CODE

SPECIAL INSTRUCTIONS: E-mail Results to
James.Laws@CH2M.Com
GEarly@CH2M.Com

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO	TPH (d) or DRO or (C8C36) or (C6-C44)	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270)	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]
1	SBPP-PCB 11-031114	3/11/14	10:46	WIPE	1	X												X			
2	SBPP-PCB 12-031114		10:52		1	X												X			
3	SBPP-PCB 9-031114		13:00		1	X												X			
4	SBPP-PCB 6-031114		13:10		1	X												X			
5	SBPP-PCB 5-031114		13:15		1	X												X			
6	SBPP-PCB 4-031114		13:20		1	X												X			

Relinquished by: (Signature) CH2MHill	3/12/14 1510	Received by: (Signature/Affiliation) CH	Date: 03/12/14 Time: 15:10
Relinquished by: (Signature)		Received by: (Signature/Affiliation) CH	Date: 3/12/14 Time: 1900
Relinquished by: (Signature)		Received by: (Signature/Affiliation)	Date: Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

09/01/13 Revision

Return to Contents

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 14-03-0924

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: CH2MHILL DATE: 03/12/14

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.8 °C - 0.3 °C (CF) = 1.5 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☐ Air ☐ Filter Checked by: 671

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 671

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 739

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: (wipe) ☑4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBp ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGJ ☐500AGJs ☐250AGB ☐250CGB ☐250CGBs ☐1PB ☐1PBna ☐500PB ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PJ ☐100PJna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister Other: ☐_____ Trip Blank Lot#:_____ Labeled/Checked by: 739

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 681

Preservative: h: HCL n: HNO_3 na_2:$Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 u: Ultra-pure znna: $ZnAc_2$+NaOH f: Filtered Scanned by: 681